

13. Fossil Bird-remains collected by Dr. Forsyth Major in Sardinia, Corsica, and Greece. By E. T. NEWTON, F.R.S., F.G.S., F.Z.S.

[Received February 8, 1921 : Read March 22, 1921.]

In the year 1891 Mr. R. Lydekker* gave an account of some Pleistocene Bird-remains which had been collected by Dr. Forsyth Major in Sardinia and Corsica. These remains were from three localities—(1) Tavolara, an island on the N.E. coast of Sardinia; (2) Monte San Giovanni, in the S.W. of the same island; and from (3) Toga, near Bastia, Corsica. From these localities some score of species were recognized more or less definitely as follows:—

(1) *Tavolara*.

Coracias cf. abyssinicus.	} Most common.
Corvus corone.	
Coccothraustes vulgaris.	
Fringilla cœlebs.	
Serinus hortulanus?	
Columba cf. livia.	
Coturnix communis.	
Puffinus cf. fuliginosus.	}
„ cf. anglorum.	
„ allied to chlororhynchus.	

(2) *Monte San Giovanni*.

Bubo cf. cinerascens.
 Milvus cf. icetus.
 Aquila sp.
 Vultur cf. monachus.
 Pyrrhula europæa.
 Alauda arborea?
 Turdus musicus.
 Hirundo rustica.
 Puffinus cf. fuliginosus.

(3) *Toga, near Bastia*.

Turdus merula.
 Columba cf. livia.
 Aquila sp.

Some years later Dr. Forsyth Major made further explorations of the Pleistocene deposits in the Mediterranean islands, and obtained a large number of Mammalian and other vertebrate remains, not only from the above-named places, but also from several new localities. Among these were many bones of birds, which

* Proc. Zool. Soc. 1891, p. 467.

Dr. Forsyth Major in the year 1908 (just before he left England) submitted to the present writer with a view to their identification. This agreeable task was accomplished some years ago, and the results have been awaiting Dr. Forsyth Major's description of the Mammalia; but, as he is still absent from England, it seems desirable that a brief account of the Avian remains should be published.

Some of these are from the same localities as those described by Mr. R. Lydekker, and, as they include some additional interesting species, these will be first considered.

(1) From Tavolara, N.E. Sardinia, there are in the present series several vertebræ belonging to *Puffinus*, a genus which Mr. Lydekker found so abundant; but besides these I have recognized bones of the Common Swift (*Cypselus apus* Linn.) and Alpine Swift (*C. melba* Linn.), also a small Crake (*Porzana parva*? Scop.) and the Storm-Petrel (*Procellaria pelagica* Linn.).

(2) From the second locality, Monte San Giovanni, there is only one Passerine humerus.

(3) From Toga, near Bastia, I have a nearly perfect humerus of a Chough (*Pyrrhocorax graculus* Linn.), which is distinctly larger than the humerus of the Alpine Chough.

(4) *Grotta di Funtanedu.*

Specimens from this and the following localities were not included in the series sent to Mr. R. Lydekker and alluded to above.

The Grotta di Funtanedu is near Bastia, N.E. Corsica, and is situated 400 metres above sea-level. It has yielded a good number of birds' bones, and some 34 species have been identified; but each of these is represented by only a few bones.

As no account of Avian fossil remains from this cave has hitherto been published, it will be well to give a detailed list of the species recognized:—

PASSERES.

- Missel-Thrush. *Turdus viscivorus* Linn.
- Song-Thrush (or Redwing). *T. musicus*? Linn.
- Fieldfare. *T. pilaris* Linn.
- Blackbird. *T. merula* Linn.
- *Large Thrush. *Turdus* sp. (? *T. varius* Pallas).
- Wheatear. *Saxicola oenanthe* Linn.
- Whinchat. *Pratincola rubetra* Linn.
- Redstart. *Ruticilla phæniceus* Linn.
- Robin. *Erithacus rubecula* Linn.
- Willow-Wren. *Phylloscopus trochilus* Linn.
- *Dipper? *Cinclus aquaticus*? Bechst.
- Wagtail. *Motacilla lugubris*? Temm.
- Titlark. *Anthus pratensis* Linn.
- Rock-Pipit? *A. obscurus*? Lath.

- Linnet. *Acanthis cannabina* Linn.
 Chaffinch. *Fringilla coelebs* Linn.
 Starling? *Sturnus*?
 Chough? *Pyrhacorax graculus*? Linn.
 Jay. *Garrulus glandarius* Linn.
 Jackdaw. *Corvus monedula* Linn.
 Skylark? *Alauda arvensis*? Linn.
 *Shore-Lark? *Otocorys alpestris*? Linn.

PICARLÆ.

- Swift. *Cypselus apus* Linn.

STRIGES.

- Short-eared Owl? *Asio accipitrinus*? Pall.

ACCIPITRES.

- Eagle. *Aquila* sp.
 Sparrow-Hawk. *Accipiter nisus* Linn.
 Kestrel. *Falco tinnunculus* Linn.

ANSERES.

- Wild Duck? *Anas boscas*? Linn.

COLUMBÆ.

- Wood-Pigeon. *Columba palumbus* Linn.

GALLINÆ.

- Red-legged Partridge. *Caccabis rufa* Linn.
 Quail. *Coturnix communis* Bonnat.

FULICARLÆ.

- Crake (small form). *Porzana parva*? Scop.

LIMICOLÆ.

- Redshanks? *Totanus calidris*? Linn.

GAVLÆ.

- Tern. *Sterna fluviatilis*? Naum.

(5) *Grotta di Brietta.*

This cave is situated in the same locality of N.E. Corsica as Funtanedu, but about 300 metres lower down—that is, about 100 metres above sea-level. From this I have identified bones of Thrush, Blackbird, Wheatear, and *Magpie (*Pica rustica* Scop.), the last-named species being an addition to the fauna of these islands.

(6) *Gradicchia Cave.*

This is another cave near Bastia, which may possibly be pre-historic; but probably even more modern. From it are recognized bones of Blackbird, Crow (or Rook), Fowl, and (it may be) Pheasant.

(7) *Margine Cave.*

The Margine Cave is situated near Nougua, Corsica, and from it remains of only two birds have been identified—the Chough (*Pyrhacorax graculus* L.) and a Pigeon.

(8) *Grotta del Capo.*

This cave is at Sagro, near Sisio, Cape Corso, N. Corsica, and among the fossil remains Thrush and Blackbird are the only Avian species recognized.

(9) *Monte Santa Cave.*

Monte Santa is near Guisba in N.W. Sardinia, and from this cave we have representatives of two birds—the Red-legged Partridge (*Caccabis rufa* Linn.) and the Woodcock (*Scolopax rusticula* Linn.).

10. *Nesakia, Isle of Cerigo, Greece.*

The remains of four species of birds are recognized among these Grecian island fossils—namely, Blackbird, Rook (?), Pigeon, and Barn-Owl (*Strix flammea* Linn.).

The species mentioned in these notes are without exception living forms: but those marked with a star (*) have not hitherto been recorded from these Mediterranean islands †. Dr. Forsyth Major appears to have no doubt as to the deposits at all the above localities, excepting No. 6, being of Pleistocene age, and doubtless the Mammalian remains which he has collected will justify this opinion; but the Birds, being only referable to modern species, offer no sure grounds for a judgment in this respect. As remarked by Mr. R. Lydekker ‡, many modern species of birds, especially among Passerine forms, are distinguished by their plumage rather than by any osteological differences, and possibly these fossil bones, although like those of modern species, may have been differently clothed in Pleistocene times, and in this way have differed from their descendants of the present day.

Since these notes were written, I have had the pleasure of seeing the valuable and detailed work of M. M. Boule on the Vertebrate fossils from the Grimaldi Caves §, in which many Birds' bones are beautifully figured and carefully described. As might have been anticipated, these caves of the mainland have yielded a very similar Avian fauna to those of the Mediterranean Islands.

Dr. Forsyth Major's specimens will be deposited at the Natural History Museum, South Kensington.

† See John Whitehead, "Ornithological Notes from Corsica," *Ibis*, 1885, pp. 24-48 and plate.

‡ *Proc. Zool. Soc.* 1891, p. 468.

§ 'Les Grottes de Grimaldi' (Monaco, 1919), Tome i. Fasciculus iv. p. 299.